

O'CONNELL

Application No. 09/286,469

January 6, 2005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (cancelled)

2. (currently amended) A network switch for a packet-based data communication network comprising a plurality of ports for the reception and transmission of data packets and means for establishing a database for controlling the passage of data packets between the ports, the database comprising a data table for holding data entries each comprising a media access control address and an identification of a port, and a hash table accessible by hashing at least a part of respective network addresses of received data packets, said hash table having entries each comprising a network address and an associated pointer to an entry in the said data table and in which said data table does not hold said network addresses;

~~A network switch according to claim 1~~ wherein the pointers associated in said hash table with network addresses which share a common media access control address in said switch all identify a single common entry in said data table thereby reducing the space required for the database by avoiding redundant storage of common media access control addresses.

3. (cancelled)

4. (previously presented) A method of operating a network switch in a packet-based data communication network, wherein the network switch has a multiplicity of ports each connected to a respective group of remote stations by way of an intermediate network device, the network switch responding to network addresses in packets received by the network switch to look up in a data table a media access control address for the respective intermediate device, said method comprising:

(a) responding to a network address of an incoming packet to access a pointer table of address pointers identifying an entry in said data table;

(b) storing network address entries in the pointer table and not in the data table; and

(c) causing the address pointers for all the network addresses of remote stations coupled to the switch by way of the same intermediate device to identify a single common entry for that device in said data table.

5. (previously presented) A method according to claim 4 wherein the step (a) includes hashing the network addresses to access the pointer table.

6. (previously presented) A network switch for a packet-based data communication network, comprising a plurality of ports for the reception and transmission of data packets which include network address data and media access control address data, comprising:

a database for controlling the passage of data packets between the ports, the database comprising a first data table for holding data entries each comprising a network address; and

O'CONNELL

Application No. 09/286,469

January 6, 2005

means for hashing network address data of said packets to access said first data table; and

further comprising a second data table containing entries comprising forwarding data including a destination media access control address; wherein:

said entries in the first data table each include a pointer to an entry in said second data table and said second data table does not include network address data.

7. (previously presented) A network switch according to claim 6 wherein the pointers associated in said first data table with network addresses which share a common media access control address in said switch all identify a single common entry in said second data table.

8. (cancelled)

9. (previously presented) A network switch for a packet-based data communication network, comprising a plurality of ports for the reception and transmission of data packets which include network address data and media access control address data, comprising:

a database for controlling the passage of data packets between the ports, the database comprising first and second data tables, wherein:

network address data and media access control data are held separately in different ones of said first and second data tables;

said first data table holds data entries each comprising a network address and a pointer to an entry in said second data table; and

O'CONNELL

Application No. 09/286,469

January 6, 2005

said second data table contains data entries each including a destination media access control address and an identification of a port;

whereby different entries in said first data table can contain pointers to the same data entry in said second data table thereby avoiding redundant storage of common media access control data for different network addresses.

10. (previously presented) A network switch for a packet-based data communication network, comprising a plurality of ports for the reception and transmission of data packets which include network address data and media access control address data, comprising:

a database for controlling the passage of data packets between the ports, the database comprising first and second data tables, wherein:

said first data table is accessible in response to network address data in said data packets and holds data entries each comprising a network address and a pointer to an entry in said second data table; and

said second data table contains data entries each including a destination media access control address and an identification of a port and not including network addresses;

whereby different entries in said first data table can contain pointers to the same data entry in said second data table.

11. (previously presented) A network switch according to claim 10 and further comprising hashing said network address data in said packets to access said first data table.

O'CONNELL

Application No. 09/286,469

January 6, 2005

12. (previously presented) A network switch for a packet-based data communication network, the switch comprising a plurality of ports for the reception and transmission of data packets that include network address data and media access control data and a database for controlling the passage of data packets between the ports,

the database being accessible by hashing at least a part of the network address of received data packets and including entries for network addresses, media access control addresses and port identification;

wherein redundant entries of common media access control addresses is avoided by having:

a first data table, accessible by said hashing, containing network addresses and associated pointers to an entry in a second table; and

the second table containing the media access control addresses and port identification; and

wherein pointers from network addresses in said first data table having a common media access control address in said switch identify a single common entry in said second table.